PART 3

AUTOMATIC OBSERVING (EHB-11)

3. Equipment Modification Notes. Modification Notes are the only documents serving to authorize the installation of modifications to instrumental equipment and systems. They provide the step-by-step installation instructions to be followed by authorized personnel in altering circuit and mechanical configurations of equipment. The purpose of any modification is either to enhance safety, maintainability, reliability, or incorporate a change necessitated by an operational requirement not previously designed into the equipment. Most modifications are the result of monitoring field reports relating to equipment failures and operational effectiveness. Other inputs result from suggestions submitted by electronics technicians and regional headquarters staffs. State-of-the-art changes are incorporated through NWS Office of Systems Operations Engineering Division personnel efforts to extend the useful life of equipment and to overcome logistics problems.

Copies of all modification instructions are provided to each electronics technician so he/she will have available the necessary information to perform the modification if equipment is encountered that has not previously been modified. The instructions are issued in numerical sequence by date and by equipment type. In this manner rapid verification by the. technician will determine whether all modification notes have been received and incorporated into the equipment. Missing material should be requested from the NLSC.

MODIFICATION INDEX - AUTOB

Number	Date of Issue	Title
1	August 20, 1979	Capacitor C1 Change in CPU
2	March 13, 1981	Backscatter Visibility Sensor Digitizer
3	March 16, 1981	Backscatter Visibility Processor 1A2A5
	April 17, 1981	Errata Sheet No. 1 to AUTOB Modification No. 2 and No. 3
4	July 1, 1982	Disable Phase Discriminator

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

September 17, 1979

OA/W5141 - JM

TO: All NWS Regional Headquarters, Area Electronics Supervisors, and Electronics Technicians (EHB-11 Distribution)

FROM: OA/W51 J. M. St. Clair

SUBJECT : Transmittal Memorandum for Engineering Handbook No. 11, Issuance 79- 8

1. Material Transmitted:

Engineering Handbook No. 11 - Automatic Observing Equipment, Section 3.1, AUTOB Modification No. 1, Capacitor C1 Change in CPU.

2. Summary:

Modification No. 1 provides Electronics Technicians with instructions for modifying the Cloud Height Processor (CPU) 1A2A3.

3. Effect on Other Instructions:

Pen-and-ink changes to Manual as noted.

4. All completed equipment modifications shall be reported on the H-28 Engineering Progress Report according to EHB-4, Part 2, Pages 2 and 15, Issuance 76-1 revised 8/15/76.

Engineering Division
W514

August 20, 1979

AUTOB MODIFICATION No. 1
(For Electronics Technicians)

SUBJECT : Capacitor C1 Change in CPU

PURPOSE : To Prevent CPU from "Running Open"

EQUIPMENT AFFECTED: All AUTOB

PARTS REQUIRED : One 2.2 mf, 2OV, 10% Kemet T310 Capacitor or Equivalent

TIME REQUIRED : 1 Work hour

General: This modification is to be performed on all AUTOB 1A2A3 Cloud Height Processor (CPU) Printed Circuit Boards. The capacitor and resistor along with the Clock Generator B7 increases the delay time associated with the "Power Up restart! This modification changes the value of C1 and will eliminate the "running open" condition that has existed.

PROCEDURE:

1. Turn off power to the AMOS and remove the Cloud Height Processor (CPU) Module 1A1A3. Place the printed circuit board on a static free working surface.

2. Locate capacitor C1 at coordinate J6. With an appropriate soldering iron (700 degrees F. maximum temperature) remove the 0.1 mfd, 50V capacitor. Replace it with the 2.2 mfd, 20V capacitor supplied. NOTE: The new capacitor is a much larger value and therefore polarity must be observed. The positive end of the capacitor is tied to the R1-C1 junction. This is not marked on the PC board, but can easily be traced. The negative end of the capacitor is connected to return as before.

3. Replace the CPU module (1A2A3) and turn on power. Check for correct operation.

MANUAL CHANGES:

Insert pen-and-ink changes as follows: AUTOB Appendix Page A23, change value of C1 from 0.1 mfd to 2.2 mfd, 10%, 20V. Page A20, locate upper left hand blue box on schematic marked (2) CPU. Capacitor C1 is located in lower left-hand corner of this box. Change value to 2.2 mfd.

Attachment: Instructions for Reporting Equipment Modifications.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

OA/W5141 - JM

March 13, 1981

TO: All NWS Regional Headquarters, Area Electronics Supervisors, and Electronics Technicians (EHB-11 Distribution)

FROM: OA/W51 - J.M. St. Clair

SUBJECT: Transmittal Memorandum for Engineering Handbook No. 11, Issuance 81- 2

1. Material Transmitted:

Engineering Handbook No. 11 Automatic Observing Equipment, Section 3.1; AUTOB Modification No. 2: Backscatter Visibility Sensor Digitizer.

2. Summary:

Modification Note No. 2 provides Electronics Technicians with instructions for installing a modified Backscatter Visibility Sensor Digitizer in the Videograph. This modification has been tested for operational integrity by the Test and Evaluation Division at Sterling, Virginia.

3. Effect on Other Instructions:

Pen-and-ink changes to manual plus additions to manual.

4. Reporting Equipment Modifications:

Target date for reporting completion of this modification is June 15, 1981.

All completed equipment modifications shall be reported on the Form H-28 (see attached exhibit), Engineering Progress Report; as outlined in EHB-4, Part 2.

Engineering Division
OA/W514

AUTOB MODIFICATION NOTE NO. 2
(For Electronics Technicians)

SUBJECT : Backscatter Visibility Sensor Digitizer

PURPOSE : To Attenuate Noise and Change Threshold Values of Visibility

EQUIPMENT AFFECTED : All AUTOB Systems

PARTS REQUIRED : Modified BVD Module

MOD PROCUREMENT : Parts for this modification will be supplied by the Engineering Division. A BVD module that has been modified will be shipped to you directly from Sterling, Virginia.

TIME REQUIRED : One Work Hour

General: This modification to the Backscatter Visibility Sensor Digitizer in the Videograph will attenuate noise and smooth the output with the addition of C7, a 200 uf capacitor, at Pin 2 of B4.

Resistor values R1O, R11, R12, and R13 were changed to comply with the FAA's request for the following thresholds of visibility:

0 = 0 to 15/16 Mile
1 = 15/16 to 15/16 Miles
1 = 1-15/16 to 2-7/8 Miles
3 = 2-7/8 to 3-1/2 Miles

PROCEDURE:

1. Turn off Videograph power.

2. Open Videograph; disconnect and remove amplifier.

3. Move amplifier to suitable work area.

4. Remove cover from amplifier (remove six screws).

5. Locate and remove BVD module from amplifier.

6. Replace with modified BVD module.

7. Reassemble, start with Step 4 and reverse procedure to Step 1.

8. Verify proper operation. Refer to the latest AUTOB Maintenance Schedule.

9. Return old module(s) for modification.

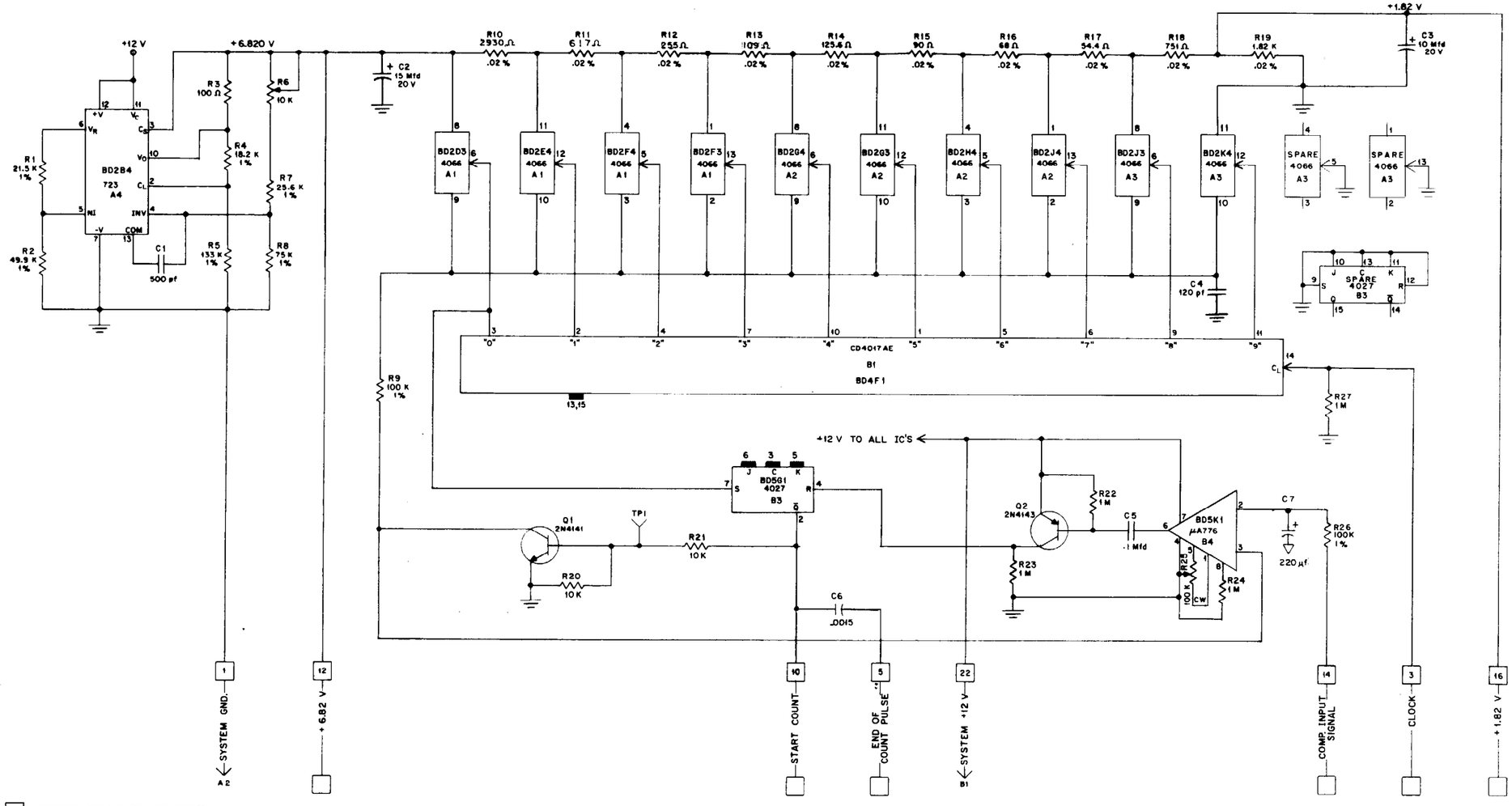
This completes the modification

Manual Changes:

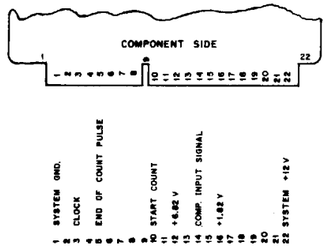
With pen-and-ink, change resistor values of R1O, R11, R12, and R13 to read 2930 ohms, 617 ohms, 255 ohms, and 109 ohms, respectively, on Drawing No. 510-1 Back-scatter Visibility Sensor Digitizer of the Fog Detector Videograph Manual. On same drawing, add capacitor C7, 220 uf at Pin 2 of B4; the positive side of capacitor going to OP amplifier and the negative indicating return. Change the values on the Parts List SO1O-F3BVD1-DR002 to conform with the above. Add Drawings SO1O-F3BVD-1-DROO1 and DR002 to the Videograph Manual.

Attachments: DWG. No. S010-F3BVD1-DR001
DWG. No. S010-F3BVD1-DR002

REVISION				
No.	Description	By	Date	Appd
A	ADDED SPARE A3 B4	DWC	1-4-78	

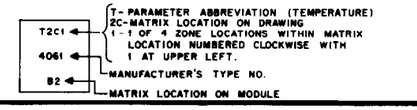


- INDICATE MODULE PIN CONNECTION
- INDICATE SYSTEM GND CONNECTION
- INDICATE REAR UNIT CONNECTOR PINS



NOTES:

1. UNLESS OTHERWISE NOTED:
   - A. RESISTANCE VALUES ARE IN OHMS.
   - B. RESISTORS ARE 1/4W, 5% FIXED COMPOSITION.
   - C. .02 % RESISTORS ARE WIRE WOUND.
   - D. 1% RESISTORS ARE METAL FILM.
   - E. CAPACITANCE VALUES ARE IN MICROFARADS.
   - F. CAPACITORS ARE 50V., 10 %.
2. CONNECTIONS FOR IC'S:
   - A. 4017, 4027 PIN 8 TO GND, PIN 16 TO +12 VDC.
   - B. 4066 PIN 7 TO GND, PIN 14 TO +12 VDC, UNUSED 4066 CONTROL PINS TO GND.
3. FOR INTERPRETATION OF:
   - A. GRAPHIC SYMBOLS FOR ELECTRICAL AND ELECTRONICS DIAGRAMS SEE ANS. Y32.2
   - B. REFERENCE DESIGNATIONS FOR ELECTRICAL AND ELECTRONICS PARTS AND EQUIPMENT SEE ANS. Y32.16
   - C. GRAPHIC SYMBOLS FOR LOGIC DIAGRAMS SEE MIL-STD-806.
4. FOR ASSEMBLY SEE DRAWING SO10-F3BVD1-DR002.
5. LOGIC IDENTIFICATION TAGGING LINES WITHIN SYMBOL:



UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES: ANGLES ±.5°
3 PLACE DECIMALS ±.005
2 PLACE DECIMALS ±.02

EQUIPMENT DEVELOPMENT LABORATORY
SILVER SPRING, MD. 20910
DATE 3-11-76

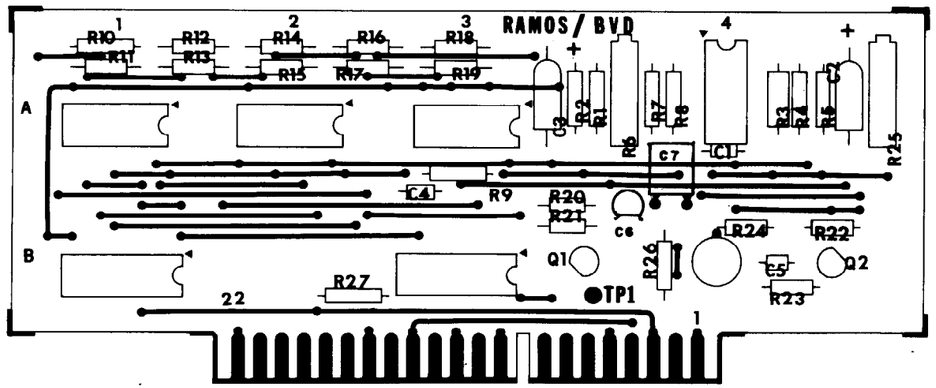
PREPARED	WILSON	EDL
CHECKED		EDL
DESIGN		EDL
APPROVED BY		EDL
APPROVED BY		3/9/78 ED

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

RAMOS FIELD STATION BACKSCATTER VISIBILITY (BVD) SENSOR DIGITIZER SCHEMATIC

SIZE	DRAWING NO.
D	SO10-F3BVD1-DR001
SCALE	SHEET 1 OF 1
FILE	

REVISION				
No	Description	By	Date	Appd



NOTES:

1. FOR SIZE AND DRILL INFORMATION SEE DRAWING NO. S010-F3BVD1-DR003.
2. FOR SCHEMATIC SEE DRAWING NO. S010-F3BVD1-DR001.
3. COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH GSFCS-722-P-5.
4. NON STANDARD REFERENCE DESIGNATORS FOR INTEGRATED CIRCUITS, FIND NO. 2 THRU 6 ARE DESIGNATED IN ACCORDANCE WITH THEIR COORDINATE LOCATION ON BOARD.
5. ALIGN INTEGRATED CIRCUITS TAB/OR PIN 1 WITH CORRESPONDING TAB ON BOARD.

FIND NO.	ELEC REF DES	NOMENCLATURE OR DESCRIPTION	QTY REQD	PART OR IDENTIFYING NO.	DWG SIZE	CODE IDENT	SPECIFICATION OR MATERIAL
40	C7	CAPACITOR 220uf	1				
39	C6	CAPACITOR .0015uf	1				
38	TP1	TEST POINT	1				
37		TRANSIPAD	2	10353		07047	USED W/Q1, Q2
36		TRANSIPAD	1	10383		07047	USED W/ S4
35	C4	CAPACITOR, 120 Pf, 50V	1	C22C121K			
34	C1	CAPACITOR, 500 Pf, 50V	1	C22C501K			
33	C3	CAPACITOR 10uf, 20V	1	T320B106M020AS			
32	C5	CAPACITOR, .001 Uf, 50V	1	C22C102K			
31	C2	CAPACITOR, 33uf, 15V	1	T320C336K015AS			
30	R19	RESISTOR, 1.82 K, 1/4W, .02%	1	HR175N1820			
29	R18	751 Ω	1	HR175N751			
28	R17	54.4Ω	1	HR175N54.4			
27	R16	68Ω	1	HR175N68			
26	R15	90Ω	1	HR175N90			
25	R14	125.6Ω	1	HR175N125.6			
24	R13	109 Ω	1	HR175N109			
23	R12	255 Ω	1	HR175N255			
22	R11	617 Ω	1	HR175N617			
21	R10	2.930 K .02%	1	HR175N2.930			
20	R3, 26	100K 1%	2	RN60D10-F			
19	R5	133K	1	RN60D1333F			
18	R6	75K	1	RN60D7502F			
17	R7	25.5K	1	RN60D25R5F			
16	R4	18.2K	1	RN60D18R2F			
15	R2	49.9K	1	RN60D49R9F			
14	R1	21.5K 1%	1	RN60D2152F			
13	R23-24 R27	1MEG 5%	4	RC07GF004J			
12	R20, 21	10K 5%	2	RC07GF103J			
11	R3	RESISTOR, 100Ω, 1/4W 5%	1	RC07GF101J			
10	R25	RESISTOR, 100K, TRIMMER	1	73PR 00K			
9	R6	RESISTOR, 10K, TRIMMER	1	73PR10K			
8	Q2	TRANSISTOR	1	2N4.43		12040	
7	Q1	TRANSISTOR	1	2N414		12040	
6	A4	INTEGRATED CIRCUIT	1	723DM		07263	
5	A1,2,3		3	CD4066AE		02735	
4	B4		1	UA776-M		02735	
3	B3		1	CD4027AE		02735	
2	B1	INTEGRATED CIRCUIT	1	CD40 7AE		02735	
1		PRINTED CIRCUIT BOARD	1	S010-F3BVD1-DR003	D		

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES: ANGLES ± 5'
3 PLACE DECIMALS ± .005
2 PLACE DECIMALS ± .02

EQUIPMENT DEVELOPMENT LABORATORY
SILVER SPRING, MD. 20910
DATE 3-11-76

PREPARED	CROOK	EDL
CHECKED		EDL
DESIGN		EDL
APPROVED BY		EDL 11-7-77
APPROVED BY		ED 11/7/77

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

RAMOS FIELD STATION BACKSCATTER VISIBILITY (BVD) SENSOR DIGITIZER PRINTED WIRING BOARD ASSEMBLY

SIZE D | DRAWING NO. S010-F3BVD1-DR002
SCALE 2-1 | SHEET 1 OF 1 | FILE

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

March 16, 1981

OA/W5141 - JM

TO: All NWS Regional Headquarters, Area Electronics Supervisors, and Electronics Technicians (EHB-11 Distribution)

FROM: OA/W51 - J.M. St. Clair

SUBJECT: Transmittal Memorandum for Engineering Handbook No. 11, Issuance No. 81-3

1. Material Transmitted:

Engineering Handbook No. 11 Automatic Observing Equipment, Section 3.1; AUTOB Modification Note No. 3: Backscatter Visibility Processor 1A2A5.

2. Summary:

AUTOB Modification No. 3, provides Electronics Technicians with instructions on receiving modified Backscatter Visibility Processor 1A2A5 PCB's, and the effect the modified PCB has on the system.

3. Effect on Other Instructions:

Pen-and-ink changes to manual and additions to manual.

4. Reporting Equipment Modifications:

Target date for reporting completion of this modification is June 15, 1981.

All completed equipment modifications shall be reported on the H-28 Engineering Progress Report, as outlined in EHB-4, Part 2. (See attached exhibit.)

EHB-11
Issuance 81-3

Engineering Division
OA/W514

AUTOB MODIFICATION NOTE No. 3
(For Electronics Technicians)

SUBJECT : Backscatter Visibility Processor 1A2A5

PURPOSE : Change Visibility Reporting Procedure

EQUIPMENT AFFECTED : All AUTOB Systems

PARTS REQUIRED : Spare 1A2A5 Module

MOD PROCUREMENT : This modification will be completed by the Engineering Division as outlined under Procedure.

SPECIAL TOOLS REQUIRED : None

TEST EQUIPMENT REQUIRED : None

TIME REQUIRED : One work hour

General: The modification to the Backscatter Visibility Processor Module 1A2A5 will change the reporting procedure for visibility. Only the latest visibility will be reported. Maximum and minimum values now reported would be eliminated. The new report will read BVX, where X will be the present numeral in miles or M for missing. Completion of this modification will allow the AUTOB Visibility to conform with FAA requirements.

PROCEDURE:

1. Carefully pack the spare Backscatter Visibility Processor 1A2A5 PCB in aluminum foil or in a static-free plastic bag. Use the foil if you are not sure of the bag. Send the spare 1A2A5 to:

NOAA, National Weather Service
Engineering Division, W5141, Attn: Mintz
8060 13th Street
Silver Spring, Md. 20910

The board will be modified at this facility and returned to you. (The PCB you send will be the one you get back.) Be sure to tag the board indicating a return address.

2. After receiving the modified spare, exchange it with the board in the system as follows:

a. Turn off power to the AMOS processor. This is important as the next step removes a Printed Circuit Board with CMOS.

2. b. Remove PCB 1A2A5, the Backscatter Visibility Processor, and take the necessary static electricity precautions.

c. Insert the modified 1A2A5 PCB.

d. Turn on power.

3. Verify proper operation. First readout is the test mode. Wait 10 minutes to receive actual readout.

4. Return old type module as described in Step 1, and repeat Steps 2, and 3, when modified 1A2A5 is again received.

This completes the modification.

MANUAL CHANGES:

With pen-and-ink refer to AUTOB Appendix Page A34, Message Composer (6). Open the input and output of F6-F. Open the line from F4A-1 to F6D-9. Open the line at F5B-11. Connect F5B-12 to F6D-9. Ground junction points from E3A-1, 8, and 2 in the Data Buffer (7).

Remove Page A32 and replace with Page A32 Change I. Page 36, strike out the drawing at the top of page; add drawings No. S007-C1BVP-DROO1, DROO2, and AUTOB AMOS BVP Master Pattern (b).

Attachment: 1 ea. Page A32 Change I

Coders. A Nine Bit Shift Register composed of F5 and F4-A sets the timing for the Backscatter Visibility portion of the AUTOB message. When RESET goes high immediately after transmission, it directly resets the shift register putting all outputs in a low state. The l(B) signal enters the shift register and is shifted through the register producing the following sequential timing pulses:

LETTERS SHIFT (Shift 1)
B
V
LETTERS/FIGURES SHIFT (Shift 2)
CURRENT VISIBILITY
SPACE

The SPACE pulse is also the l(C) signal sent to the next printed circuit card in the sequence.

7 DATA BUFFER

Holds the current, maximum, and minimum visibility data for transmission. Latch C2 holds the current visibility data. It is clocked by the DATA VALID pulse. This clock pulse is inhibited when the Videograph is undergoing Self-Test Check or when the Message Composer is sending SHIFTS or CURRENTS. Latches B3 and B8 hold the maximum and minimum visibility data. They are clocked by the pulse at the end of the FIFO data circulation.

8 DATA MISSING REGISTER

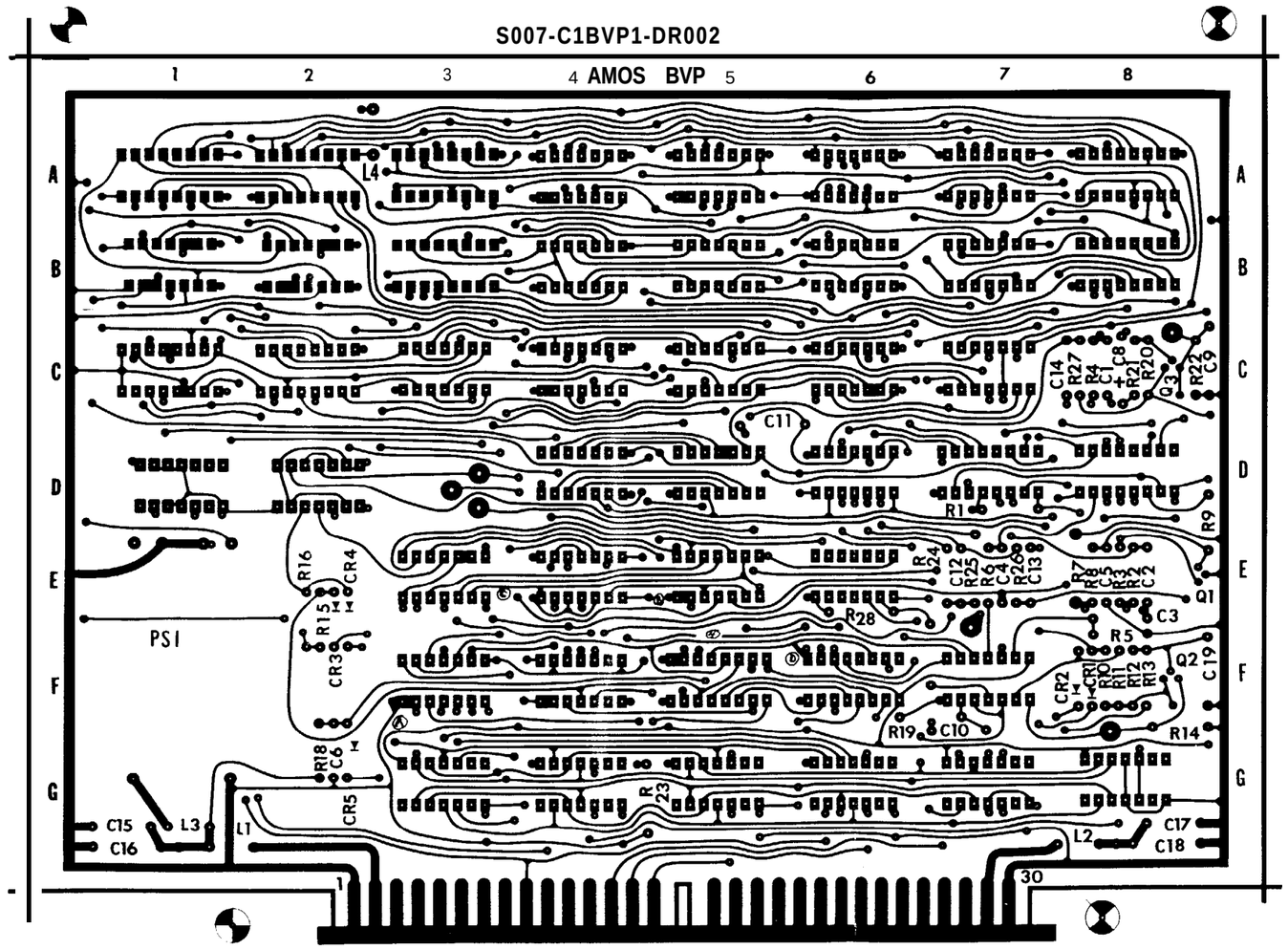
Indicates the status of data in the Buffer. Flip-flop E4-B contains the status of the current visibility, while flip-flop E4-A contains the status of the Maximum/Minimum Visibilities. When a RESTART occurs, none of the data are valid. This sets CURRENT MISSING (CM) flip-flop E4-B, which sets MAX/MIN MISSING (MMM) flip-flop E4-A. CM will be reset when valid data are clocked into the current buffer: MMM will be reset when valid data are clocked into the MAX/MIN Buffer. If data are missing when the message is being composed, the letter “M” will be sent for each missing datum. Thus if the current datum is missing, SHIFT 2 will send a LETTERS SHIFT, and CURRENT will send an M. If there is valid data, the Shifts will be FIGURE SHIFTS and the data will be numbers.

9 BCD CODER

Gates the parallel Current visibility values to the BCD Buss when queried by the Message Composer. Transmission will be inhibited by the Data Missing Register if data is missing.

10 BAUDOT CODER

Gates shifts and letters to the BAUDOT BUSS and generates a BCD inhibit when gating characters to the BAUDOT BUSS. Gate F3-A determines whether SHIFT 2 will be a letters or figures shift. Gates F3-D, and E3-B put an M on the buss when appropriate.



NOTES :

1. THE ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A METHOD OR PROCESS WHICH WILL INSURE DIMENSIONAL STABILITY (THE LENGTH VARIATION IN ANY DIRECTION SHALL NOT EXCEED .001 INCH PER FOOT OF LENGTH) IS AN ACCURATE TEMPLATE TO BE USED TO PRODUCE PRINTED WIRING BOARD.
2. ANY PRINTS OF THIS DRAWING ARE FOR REF. ONLY
3. THIS TEMPLATE IS PREPARED TO AN ENLARGED SCALE AND MUST BE REDUCED TO THE ACTUAL SIZE TO PRODUCE PRINTED WIRING BOARD.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES ANGLES ± 5'
3 PLACE DECIMALS ± .005
2 PLACE DECIMALS ± .02

EQUIPMENT DEVELOPMENT LABORATORY
SILVER SPRING, MD. 20910

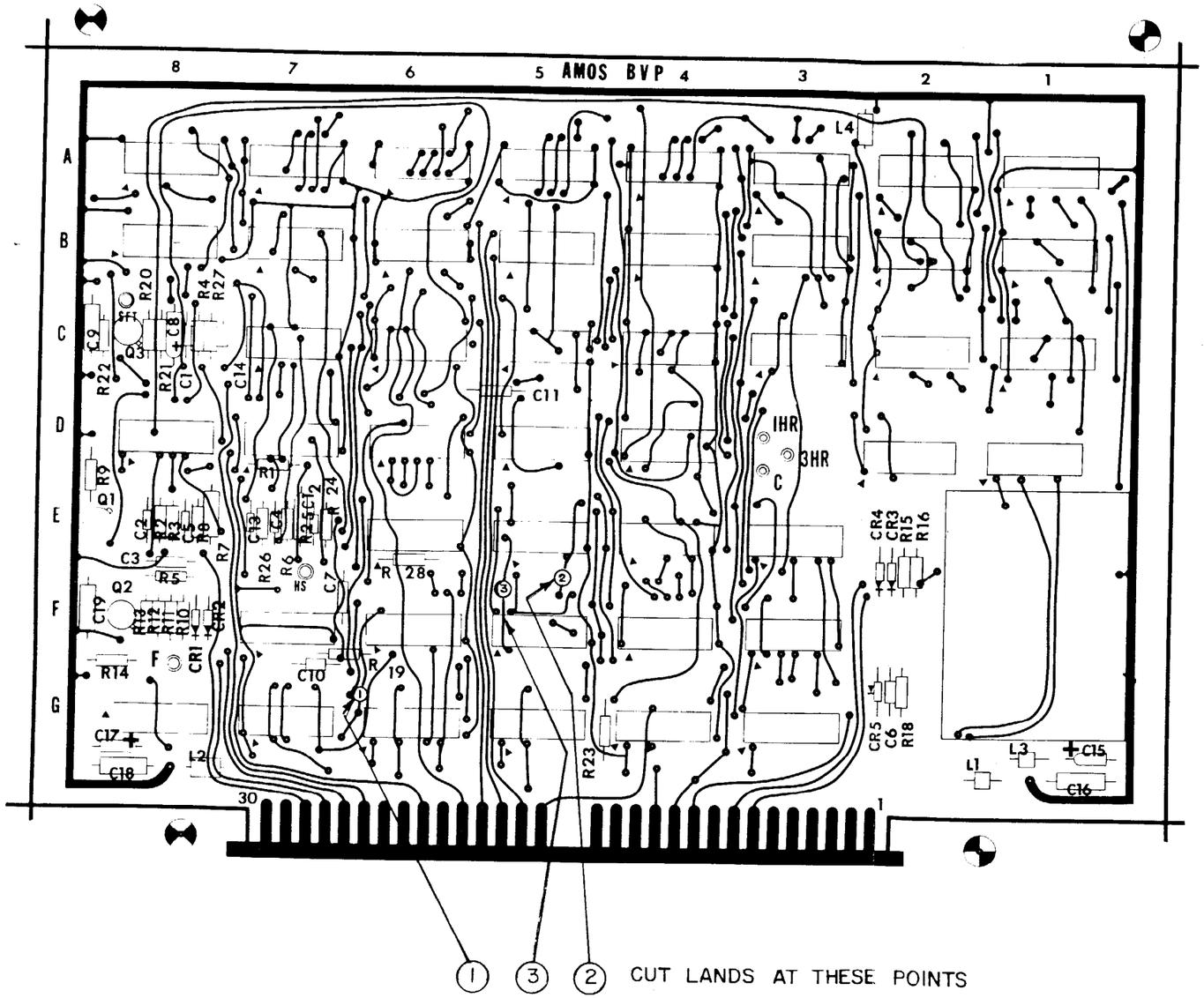
DATE

PREPARED		EDL
CHECKED		EDL
DESIGN		EDL
APPROVED BY		EDL
APPROVED BY		ED

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

AUTOB
AMOS BVP
PRINTED WIRING BOARD MASTER PATTERN (B)

SIZE	DRAWING NO.	
D		
SCALE 2/1	SHEET	FILE



① ③ ② CUT LANDS AT THESE POINTS

REVISION				
No.	Description	By	Date	Appd
A	UPDATED PARTS LIST	DMC	1-4-78	
B	UPDATED PARTS LIST	DMC	1-17-78	

44								
43	RZ5	RESISTOR, 402K, 1%	1					
42	R24	RESISTOR, 2M	1					
41	R22	RESISTOR, 620Ω	1					
40	R14	RESISTOR, 10K	1					
39	R8	RESISTOR, 43K	1					
38	R7	RESISTOR, 2K, ½W	1					
37	R4, R6	RESISTOR, 100K	5					
	R12, R20							
	R26							
36	R3	RESISTOR, 62K	1					
35	RZ, R5	RESISTOR, 1M	6					
	R9, R19							
	R27, 23							
34	R1, R10	RESISTOR, 51K	9					
	R11, R13							
	R15, R16							
	R18, R21							
	R28							
33	C15, C17	CAPACITOR, 12 μf/6V/10%	2	T320A126K006AS		31433	KEMET	
32	C13	CAPACITOR, 100 PF/50V	1	C22C101K		16546	USCC	
31	C9, C16	CAPACITOR, .1 μf, 50V/10%	4	C22C104K		16546	USCC	
	C18, C19							
30	C8	CAPACITOR, 2.2 μf/20V	1	T310A225K020AS		05397		
29	C5, C6	CAPACITOR, .01 μf, 50V	2	C22C103K		16546	USCC	
28	C1, C2, C3	CAPACITOR, .001 μf	9	C22C102K		16546	USCC	
	C4, C7, C10							
	C11, 12, 14							
27	CR1, CR2	DIODE	5	1N457A				
	CR3, CR4							
	CR5							
26	Q2, Q3	TRANSISTOR	2	2N2907A				
25	Q1	TRANSISTOR	1	2N2222A				
24	L1, L2	FERRITE BEAD	4					
	L3, L4							
23	D3	EYELET	3					
22	F, H5	TEST TERMINAL	3	1593-2				
	SFT							
21	B5, B6, G3	DUAL EXPANDER	3	SP300A		18324	SIGNETICS	
	G4, G5, G6							
	G7, G8, D4							
20	A2	FIFO SHIFT REGISTER	1	3341PC		07263	FAIRCHILD	
19	F7	OR GATE	1	CD4071BE				
18	F5	DUAL 4-STAGE SHIFT REGISTER	1	CD4015AE				
17	C7	TRIPLE 3-INPUT NOR GATE	1	CD4025AE				
16	D7	HEX BUFFER/INVERT. CONVERTER	1	CD4049AE				
15	D6	QUAD 2-INPUT NOR	1	CD4001AE				
14	D5	8-INPUT NOR GATE	1	CD4078AE				
13	D4, E6	7 STAGE RIPPLE COUNTER	2	CD4024AE				
12	D2	QUAD 2-INPUT NAND TRIGGER	1	CD4093BE				
11	E3	OR GATE, TRIPLE 3-INPUT	1	CD4075BE				
10	C6	TRIPLE 3-INPUT NAND	1	CD4023AE				
9	C1	BINARY/DECADE, UP/DN COUNTER	1	CD4029AE				
8	B3, B8, C2	QUAD CLOCKED "D" LATCH	3	CD4042AE				
7	B1, B2	QUAD BILATERAL SWITCH	2	CD4016AE				
6	A3, A8	4-BIT COMPARATOR	2	CD4063BD				
5	A4, A5, A6	"D" TYPE FLIP-FLOP	7	CD4013AE				
	A7, C4, E4							
	F4							
4	B4, B7, C3	AND GATE, QUAD 2-INPUT	6	CD4081BE				
	C5, E5, F3							
3	A1, D8, F6	HEX BUFFER/CONVERTER	3	CD4050AE		02735	RCA	
2		DC-DC CONVERTER	1	BPM 12/25-05		02021	DATEL SYSTEMS	
1	BVP	PRINTED WIRING BOARD	1	S007-C1BVP1-DR003	D			
FIND NO.	ELEC REF DES	NOMENCLATURE OR DESCRIPTION	QTY REQD	PART OR IDENTIFYING NO.	DWG SIZE	CODE IDENT	SPECIFICATION OR MATERIAL	

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED,
DIMENSIONS ARE IN INCHES
TOLERANCES: ANGLES ± 5°
3 PLACE DECIMALS ± .005
2 PLACE DECIMALS ± .02

EQUIPMENT DEVELOPMENT LABORATORY
SILVER SPRING, MD. 20910
DATE 11-1-76

PREPARED	COMPTON	EDL
CHECKED		EDL
DESIGN		EDL
APPROVED BY		EDL
APPROVED BY		ED

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

AMOS III-73
BACKSCATTER VISIBILITY PROCESSING (BVP) ASSEMBLY

SIZE D
DRAWING NO. S007-C1BVP1-DR002
SCALE
SHEET 1 OF 1
FILE

UNITED STATES DEPARTMER1T QF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

OA/W5141 - JM

PRELIMINARY

TO: All NWS Regional Headquarters, Area Electronics Supervisors, and Electronics Technicians (EHB-11 Distribution)

FROM: O/AW51 - J.M. St. Clair

SUBJECT: Transmittal Memorandum for Engineering Handbook No. 11, Issuance 81-

1. Material Transmitted:

Engineering Handbook No. 11 - Automatic Observing Equipment, Section 3.1: Errata Sheet No, 1 to AUTOB Modification No. 2 and No. 3.

2. Summary:

Errata Sheet No 1 instructs Electronics Technicians on pen-and-ink changes to AUTOB Modification No. 2 and No. 3.

3. Effect on Other Instructions:

None.

EHB-11
Issuance 81-

PRELIMINARY

Engineering Division
OA/W514

ERRATA SHEET NO. 1 TO AUTOB MOD NOTE NO. 2

AUTOB MOD NOTE NO. 2, Page 1, General paragraph: An error exists under thresholds of visibility:

The line that reads: "1 = 1-15/16 to 2-7/8 miles."

should read : "2 = 1-15/16 to 2-7/8 miles."

On sample form WS Form H-28, remarks column:

Change the date MOD No. 2 should be reported

to: June 15, 1981.

ERRATA SHEET NO. 1 TO AUTOB MOD NOTE NO. 3

On sample form WS Form H-28, remarks column:

Change the date MOD No. 3 should be reported

to: June 15, 1981.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

OA/W5141- **JM**

July 1, 1982

TO: All NWS Regional Headquarters, Area Electronics Supervisors, and Electronics Technicians (EHB-11 Distribution)

FROM: for OA/W51 - J. Michael St. Clair

SUBJECT: Transmittal Memorandum for Engineering Handbook No. 11

1. Material Transmitted:

Engineering Handbook No. 11 - Automatic Observing Equipment, Section 3.1; AUTOB Modification Note No. 4: Disable Phase Discriminator.

2. Summary:

This modification will allow the AUTOB to receive and process the RBC Detector Output, independent of shutter phase.

3. Effect on Other Instructions:

Refer to AUTOB Modification Note No. 4, Manual Changes.

4. Reporting Equipment Modifications:

Target date for reporting completion of this modification is August 20. 1982.

All completed modifications shall be reported on H-28 Engineering Progress Report Form, in accordance with EHB-4, Part 2.

5. Certification Statement:

This modification has been successfully field tested for system operational integrity.

EHB-11
Issuance 82- 4

Engineering Division
OA/W514

AUTOB MODIFICATION NOTE NO. 4
(For Electronics Technicians)

SUBJECT : Disable Phase Discriminator

PURPOSE : To allow the AUTOB to receive and process the RBC Detector Output, independent of shutter phase

EQUIPMENT AFFECTED : All AUTOB Systems

PARTS REQUIRED : 2 ea. 1N277 (equivalent to 1N48) Diode

MOD PROCUREMENT : Parts for this modification will be sent to all AUTOB stations automatically

SPECIAL TOOLS REQUIRED : None

TEST EQUIPMENT REQUIRED : None

TIME REQUIRED : One work hour

General: - This modification will allow the AUTOB to receive and process the RBC detector output, independent of shutter phase. It replaces the phase discriminator portion with a diode full wave bridge. After the modification is completed, only the synchronous detector and low pass filter portions of the circuit are used.

PROCEDURE:

1. Remove the top and bottom cover plates from model 3132 discriminator. While consulting the schematic at the end of the discriminator manual (Drawing No. 41352, Sheet 2), locate transistors Q7 and Q8. Carefully unsolder these FETs and remove from board.

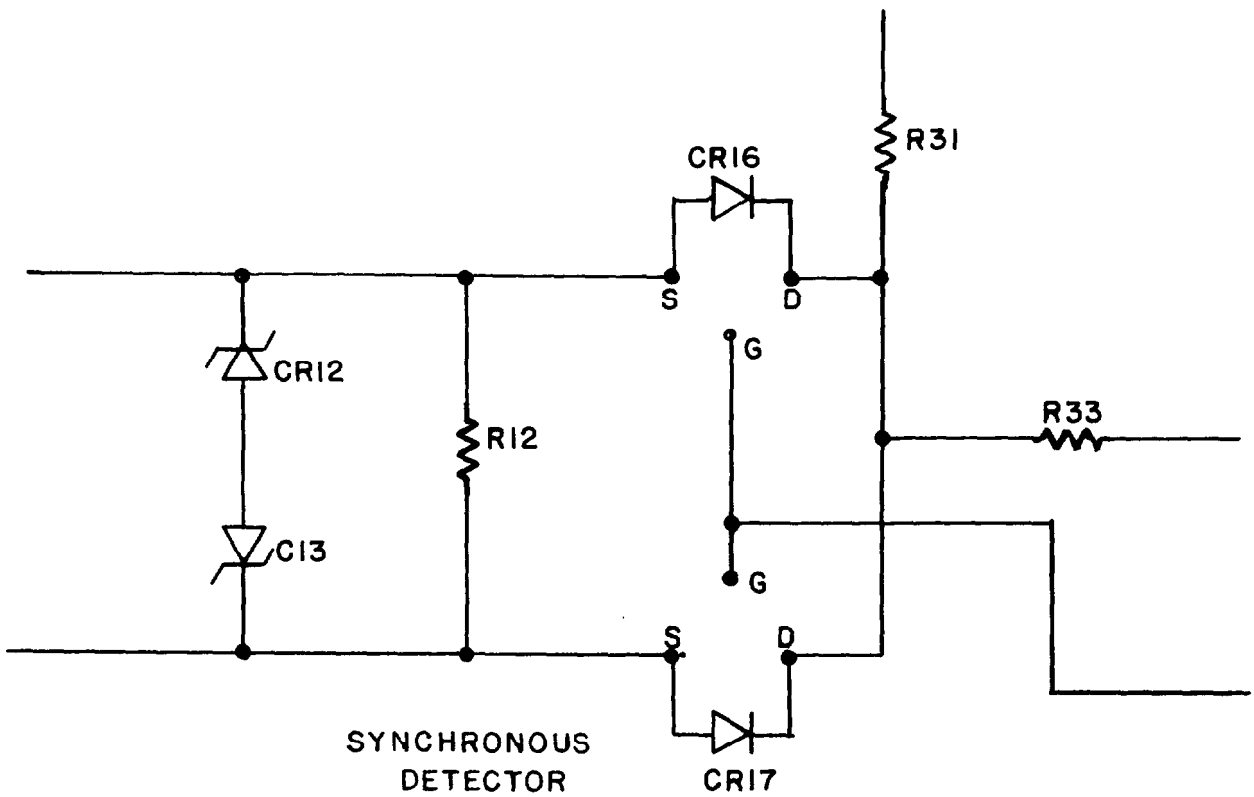
2. See Figure 1. Solder the cathode of one of the supplied 1N277 germanium diodes to the vacated source terminal pad of Q7. Solder the cathode of the second 1N277, the source pad of Q8 on the PCB. Solder the anode to the drain terminal pad.

This completes the modifications.

MANUAL CHANGES:

With pen-and-ink refer to Manual 8-118, Ithaco Discriminator Model 3120, Drawing No. 41352, Sheet 2. Change drawing as per Figure 1. On Page 6-5, strike out Q7 and Q8. On Page 6-4 under reference designation, add CR16 and CR17. Under description, add Diode. Under part number, add 1N277 or 1N48.

Attachment: Figure 1



F I G U R E 1

MODEL 3132 DISCRIMINATOR MODIFICATION OF DRAWING #41352, SHEET 2

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

OA/W5141- JM

July 1, 1982

TO: All NWS Regional Headquarters, Area Electronics Supervisors, and Electronics Technicians (EHB-11 Distribution)

FROM: for OA/W - J. Michael St. Clair

SUBJECT: Transmittal Memorandum for Engineering Handbook No. 11

1. Material Transmitted:

Engineering Handbook No. 11 - Automatic Observing Equipment, Section 3.1; AUTOB Modification Note No. 4: Disable Phase Discriminator.

2. Summary:

This modification will allow the AUTOB to receive and process the RBC Detector Output, independent of shutter phase.

3. Effect on Other Instructions:

Refer to AUTOB Modification Note No. 4, Manual Changes.

4. Reporting Equipment Modifications:

Target date for reporting completion of this modification is August 20, 1982.

All completed modifications shall be reported on H-28 Engineering Progress Report Form, in accordance with EHB-4, Part 2.

5. Certification Statement:

This modification has been successfully field tested for system operational integrity.

EHB-11
Issuance 82-4

Engineering Division
OA/W514

AUTOB MODIFICATION NOTE NO. 4
(For Electronics Technicians)

SUBJECT : Disable Phase Discriminator

PURPOSE : To allow the AUTOB to receive and process the RBC Detector Output, independent of shutter phase

EQUIPMENT AFFECTED : All AUTOB Systems

PARTS REQUIRED : 2ea. 1N277 (equivalent to 1N48) Diode

MOD PROCUREMENT : Parts for this modification will be sent to all AUTOB stations automatically

SPECIAL TOOLS REQUIRED : None

TEST EQUIPMENT REQUIRED : None

TIME REQUIRED : One work hour

General: - This modification will allow the AUTOB to receive and process the RBC detector output, independent of shutter phase. It replaces the phase discriminator portion with a diode full wave bridge. After the modification is completed, only the synchronous detector and low pass filter portions of the circuit are used.

PROCEDURE:

1. Remove the top and bottom cover plates from model 3132 discriminator. While consulting the schematic at the end of the discriminator manual (Drawing No. 41352, Sheet 2), locate transistors Q7 and Q8. Carefully unsolder these FETs and remove from board.

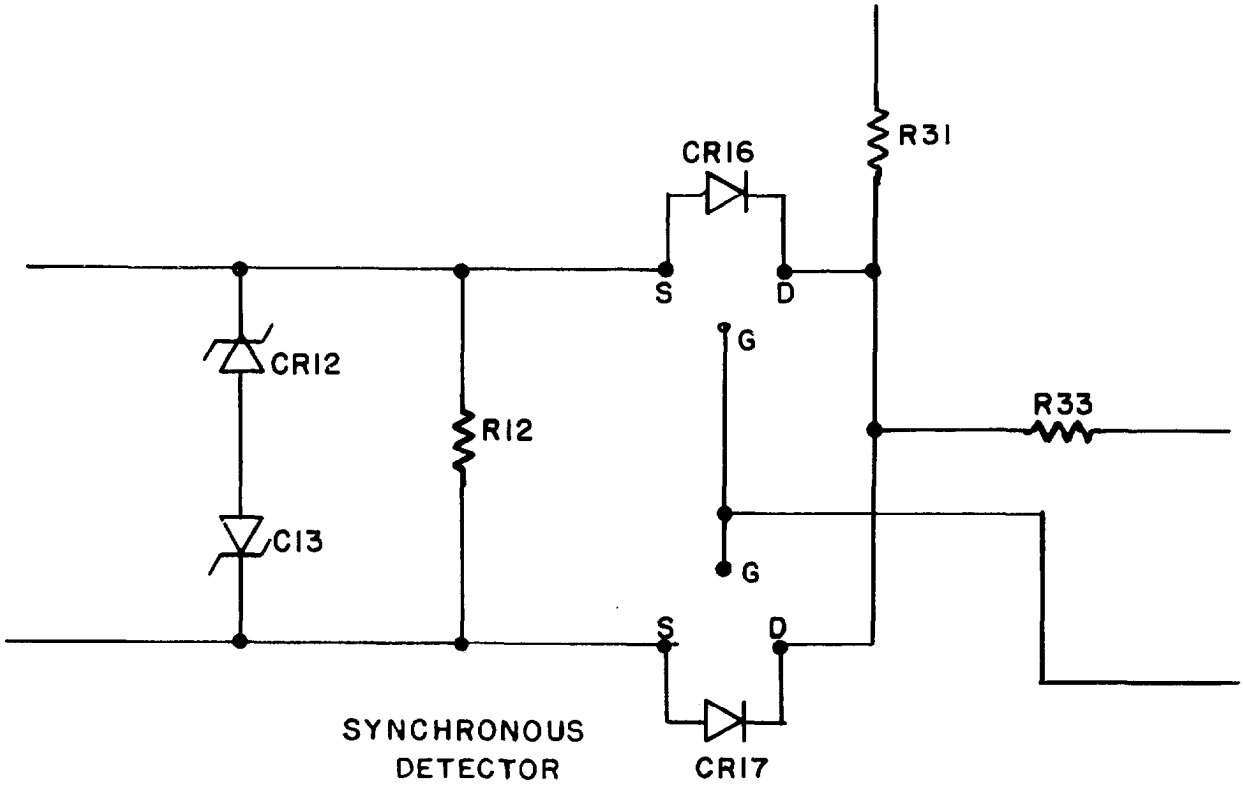
2. See Figure 1. Solder the cathode of one of the supplied 1N277 germanium diodes to the vacated source terminal pad of Q7. Solder the cathode of the second 1N277, the source pad of Q8 on the PCB. Solder the anode to the drain terminal pad.

This completes the modifications.

MANUAL CHANGES:

With pen-and-ink refer to Manual 8-118, Ithaco Discriminator Model 3120, Drawing No. 41352, Sheet 2. Change drawing as per Figure 1. On Page 6-5, strike out Q7 and Q8. On Page 6-4 under reference designation, add CR16 and CR17. Under description, add Diode. Under part number, add 1N277 or 1N48.

Attachment: Figure 1



F I G U R E 1

MODEL 3132 DISCRIMINATOR MODIFICATION OF DRAWING #41352, SHEET 2